

Immunization: An International Achievement

We are committed to working with partners to improve health in the United States and globally. The National Immunization Program (NIP) works closely with both established and new global partners to provide immunization expertise for global childhood immunization programs. We are committed to making polio eradication a reality, to pursuing efforts to eliminate or better control measles and rubella, and to helping developing countries use vaccines to control and prevent vaccine-preventable diseases.

Preventing Disease Around the Globe

For most vaccine-preventable diseases, no country is ever truly free of a disease until all countries are free. Working together, the countries of the world wiped smallpox off the face of the earth. It is hoped that polio transmission will be stopped in 2005. The Centers for Disease Control and Prevention (CDC) continues to lead collaborative efforts to protect every person in every country from vaccine-preventable diseases.

Working Globally to Strengthen Routine Immunization Services

Approximately 2.2 million people die each year as a result of diseases that could have been prevented with currently available vaccines (WHO, 2003). Vaccines that are now in the late stages of development or have been recently introduced in industrialized countries, such as the pneumococcal conjugate vaccine, could prevent almost two million additional deaths. CDC is therefore committed to improving access to sustainable and safe immunization services. Together with international partners, NIP is working to strengthen routine immunization activities, to reduce illness and death caused by vaccine-preventable diseases, and to build a strong platform for the introduction of new vaccines in the developing world. In 2004, CDC continued to work with international partners at the regional and national levels to provide technical assistance to strengthen immunization programs, to improve health information systems and use of data, and to promote alignment with polio eradication and measles mortality reduction strategies. In addition, NIP is

collaborating with both WHO and UNICEF in the development of their joint worldwide plan for immunization through 2015, the Global Immunization Vision and Strategies (GIVS).

Supporting the Global Alliance for Vaccines and Immunization

CDC also works closely with the Global Alliance for Vaccines and Immunization (GAVI). This network of international partners was established to help the poorest countries strengthen childhood immunization programs, introduce new and under-utilized vaccines, improve injection safety in immunization programs, and fund research into the development of new vaccines. Through the generosity of partners such as the Bill and Melinda Gates Foundation, the vaccine fund is currently capitalized at more than \$1 billion, with more than 60 countries currently receiving GAVI funding support.



A measles-rubella vaccination clinic held at a local school, Chuuk, Federated States of Micronesia.

From 2001–2003, CDC served as the technical institute representative on the GAVI Board. NIP staff continue to play an active role on GAVI's Monitoring and Evaluation Task Force. In this arena, NIP has provided technical support at the global, regional, sub-regional, and national levels in the implementation and evaluation of GAVI-related activities. Other partners include the World Health Organization (WHO), the United Nations Children's Fund (UNICEF), the World Bank Group, the International Federation of Pharmaceutical Manufacturers Association, other public health and research institutions, and national governments.

The GAVI Mission

GAVI works to protect children of all nations and of all socioeconomic levels against vaccine-preventable diseases.

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GAVI has established six objectives to fulfill this mission:

- Improve access to sustainable immunization services.
- Expand the use of all existing safe and cost-effective vaccines, and promote delivery of other appropriate interventions at immunization contacts.
- Support the national and international accelerated disease control targets for vaccine-preventable diseases.
- Accelerate the development and introduction of new vaccines and technologies.
- Accelerate research and development efforts for vaccines needed primarily in developing countries.
- Make immunization coverage a center of international development efforts.

In 2002, working with other centers at CDC, NIP developed and published the strategic document, ***Global Immunization, 2002–2006: An Overarching Strategy for CDC***.

This document complements the current CDC global health strategy document, ***Working with Partners to Improve Global Health: A Strategy for CDC and ATSDR*** (published in September 2000) by providing specific information about CDC's health strategy for global immunization.



School boys and girls, Chuuk, Federated States of Micronesia, 2004

Polio Eradication

Since the World Health Assembly resolved to eradicate poliomyelitis globally, global polio eradication efforts have been very successful. Of the three types of wild polioviruses, type 2 was last seen in 1999 and appears to have been eradicated. Today, more than 200 countries and territories are certified polio-free, and the disease is now endemic in just six countries in South Asia and in Africa. While progress has been made in India, Pakistan, and Afghanistan, in 2004 polio transmission was re-established in Burkina Faso, Central African Republic, Chad, Ivory Coast, and Sudan because of suboptimal immunization activities. For the year 2004, there were 1,170 confirmed cases of paralytic polio reported to WHO (provisional data as of January 4, 2005*), compared to 784 reported cases in 2003. The 2004 figure represents a case decline of more than 99% since the World Health Assembly launched the global initiative to eradicate polio in 1988. Many challenges remain, however, as we strive to achieve and certify the eradication of polio.

Significant Achievements in Polio Eradication

Vaccine Delivery

During 2004, CDC contributed more than 500 million doses of oral polio vaccine (OPV) through UNICEF to eradicate polio.

Supplemental Immunization Activities (SIAs)

Every country with endemic or recently endemic polio conducts supplemental immunization activities (SIAs) such as National Immunization Days (NIDs) or Sub-National Immunization Days (SNIDs). During these activities, every child younger than five years of age receives two doses of oral polio vaccine, one month apart, regardless of prior immunization status. In 2004, an estimated 500 million children in more than 55 countries were reached as part of these efforts. At that time, roughly two billion doses of oral polio vaccine were delivered during SIAs.

Stop Transmission of Polio (STOP) Teams

Professionals with experience in epidemiology and surveillance are sent to polio-endemic countries to help with surveillance as well as

the planning and evaluation of NIDs. Since January 1999, 573 STOP team members have participated in 3-month assignments in 42 different countries; in 2004, 102 staff from NIP participated in these STOP teams, providing more than 4,000 person days in immunization activities, polio surveillance, advocacy, and data management for eradication efforts. This initiative has significantly enhanced and boosted each host nation's Expanded Programme on Immunization.

Surveillance

CDC and the Global Polio Eradication Initiative partners have intensified efforts to develop active surveillance for acute flaccid paralysis (rapid onset of floppy paralysis of arms and legs) and polio in India, Bangladesh, Pakistan, Afghanistan, Nigeria, Ethiopia, Angola, and other countries in Asia and Africa.

Laboratory Support

CDC assists WHO in building global polio and measles laboratory networks and serves as a WHO Global Specialized Reference

Laboratory for polio. Reference laboratories are highly qualified laboratories that receive specimens from other laboratories for confirmation and also provide assistance with difficult specimens. To date, there are 145 laboratories in the global polio network.

Partnerships

Collaboration among international partners continues to expand. This collaboration is unique among public health initiatives in its unprecedented level of joint activity, scale of private sector contributions, and funds raised. Rotary International alone projects a contribution of more than \$500 million (U.S. dollars) by 2005. The partners include CDC, Rotary International, UNICEF, WHO, the U.S. Agency for International Development, Japan, Great Britain, Germany, Canada, Denmark, Australia, the Netherlands, the Task Force for Child Survival and Development, the United Nations Foundation, the Bill and Melinda Gates Foundation, World Bank, the International Federation of Red Cross and Red Crescent Societies, Aventis Pasteur/IFPMA, and other international agencies.

*Polio data for 2004 is provisional because cases are sometime reported as long as two months after onset of paralysis. Visit www.polioeradication.org for the latest polio statistics.

Activities that have worked so well in reducing and eliminating polio will continue. These activities include

Continuing the Commitment to Eradicate Polio

- Accelerating immunization activities and intensifying surveillance in all polio-endemic countries, particularly those affected by war or civil unrest
- Supporting coordinated, planned strategies for polio eradication based on strong routine immunization programs, National Immunization Days, acute flaccid paralysis surveillance, and “mopping-up” immunization
- Supporting the STOP Program to ensure that a cadre of trained public health professionals works in high-priority countries to accelerate polio eradication, accelerate measles mortality reduction and regional elimination, and improve disease data management
- Continuing research and developing consensus for post-eradication immunization policy and support for laboratory containment of the polio virus
- Moving forward with the certification process for countries that are polio-free but not yet certified
- Seeking the additional financial and human resources to fully implement the WHO-recommended strategies for polio eradication in Africa and Asia

Success Story

South Asia made significant progress in stopping the transmission of polio in 2004. The three polio-endemic countries in the region, India, Pakistan, and Afghanistan, reported only 174 cases in 2004, a decrease of approximately 48% from 336 polio cases reported in those countries in 2003.

These numbers are particularly encouraging because in 2002, India suffered an epidemic of polio, with 1600 cases in that country alone. In addition, Bangladesh and Nepal, which border India, have maintained their polio-free status since 2001. These countries hold polio SIAs as recommended by the polio partnership and continue to conduct high-quality surveillance for acute flaccid paralysis (AFP), which detects polio cases.

* Provisional data as of January 4, 2005

Measles Mortality Reduction and Regional Elimination Efforts

Measles is no longer endemic in the United States. This means that all of the cases now seen in our country were either documented or believed to have been brought in from other countries.

The number of cases in the Western Hemisphere has been reduced by more than 99% from approximately 250,000 cases in 1990 to 96 cases in 2004.* And measles importations in the United States from Latin America have also dropped from 230 imported cases in 1990 to no cases during 2000–2004.

However, measles remains rampant in other parts of the world. In 2003, measles was responsible for an estimated 530,000 deaths in developing countries, and it was the leading cause of vaccine-preventable death for children under 5 years of age. CDC, in partnership with the World Health Organization, UNICEF, the American Red Cross, and the United Nations Foundation, agrees that there is an urgent need to accelerate global measles control.

Measles Initiative Continues

The American Red Cross, CDC, the United Nations Foundation, the World Health Organization, and the United Nations Children's Fund continue to support the Measles Initiative, a five-year program to control measles deaths in Africa by vaccinating 200 million children in 36 sub-Saharan countries by 2005. While most Americans barely remember measles, this disease kills many thousands of children annually, a half million in Africa alone. This fact makes measles the single leading vaccine-preventable cause of death among children in the Africa, yet it can be easily prevented with a simple vaccination. To date, more than 140 million children have been vaccinated in 24 countries, saving over half a million young lives.

For more information about the Measles Initiative, visit www.measlesinitiative.com.



A measles-rubella vaccination clinic held at a local school, Chuuk, Federated States of Micronesia. Marking the finger of a vaccinated child is Dara Friedman, Public Health Advisor.



Banner announcing measles vaccination campaign, April, 2004, in Chuuk, Federated States of Micronesia.

*Provisional data as of December 7, 2004

Achievements in Measles Reduction and Elimination

Partnership

CDC has played a leading role in establishing a new partnership to champion measles control efforts and prevent the annual measles deaths still occurring worldwide. The partnership includes WHO, UNICEF, the American Red Cross, the United Nations Foundation, and the International Federation of the Red Cross and Red Crescent Societies. From 2001–2004, the partnership immunized more than 140 million children and prevented an estimated 700,000 deaths in Africa.

Strategies

A three-pronged strategy has been responsible for many successes in global measles reduction, such as the dramatic drop in measles cases in the Western Hemisphere and the elimination of endemic measles in the United States.

The strategy consists of the following approaches:

- Supplementary immunization activities to rapidly increase population immunity against measles (a “second opportunity” for measles immunization)
- High routine coverage with at least one dose of measles vaccine
- Integrated epidemiologic and laboratory surveillance

Support

During 2004, CDC supported measles mortality reduction in the African Region (Burkina Faso, Ethiopia, Kenya, Madagascar, Mali, Niger, Togo, and Zambia), the Eastern Mediterranean Region (Egypt and Sudan), the Southeast Asia Region (Nepal and Sri Lanka), and the Western Pacific Region (China, Pacific Island Countries, and Philippines). In addition, CDC supported

regional measles elimination activities in the Region of the Americas (Argentina, Bolivia, Guyana, Nicaragua, and Paraguay) and the European Region (Tajikistan and Turkey).

Significant Accomplishments

During 2004, there were only 96 confirmed measles cases in the Western Hemisphere compared to 2,572 confirmed cases in 2002.* The majority of these cases were imported from measles-endemic countries outside the Western Hemisphere. No sustained measles transmission has been reported in the Americas since November 2002. In fiscal year 2004, CDC contributed approximately \$45.5 million in grants and other scientific and technical assistance to control measles globally, as compared with a contribution of approximately \$28 million in fiscal year 2002.

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*Provisional data as of December 7, 2004

Continuing Commitment to Measles Reduction and Elimination

Measles activities will continue, moving toward the reduction and elimination of another deadly vaccine-preventable disease and improving health and quality of life for people everywhere.

These activities include:

- Supporting accelerated measles control in Africa by focusing on nine priority countries (Burkina Faso, Cameroon, Chad, DR Congo, Kenya, Mozambique, Tanzania, Togo, and Zambia) in 2005
- Eliminating measles in the Western Hemisphere, in cooperation with the Pan American Health Organization (PAHO), by strengthening surveillance, outbreak investigation and response, routine immunization and implementation of vaccination strategies, and epidemiological and laboratory capabilities
- Implementing the Global Measles Strategic Plan (2001–2005) with partners for measles-related mortality reduction and regional elimination of the disease
- Building epidemiologic and laboratory surveillance capability
- Evaluating vaccination strategies for elimination, mortality, reduction, and accelerated control
- Promoting injection safety and development of new injection tools
- Increasing the capacity of ministries of health to evaluate supplementary immunization campaigns
- Conducting research to determine the impact of the HIV pandemic on measles control and to facilitate the development of high-speed, needle-free injection devices

Success Stories

Dramatic Drop in Measles Deaths among the World's Poorest Children

Measles strikes hardest at some of the youngest and poorest members of the global community, but the rate of mortality from measles has been declining sharply—and rapidly. Global measles deaths fell from 869,000 in 1999 to 530,000 in 2003, a drop of 39% and an indication that measles mortality reduction efforts are actually proceeding ahead of schedule.

The support of the Measles Initiative, which has helped implement large-scale immunization campaigns in Africa, has been an important factor in this decline. The goal of the five-year initiative (2001–2005) is to reduce global measles deaths by 50% by the end of 2005, compared to 1999 figures.

The Centers for Disease Control and Prevention, the American Red Cross, the United Nations Foundation, the World Health Organization, and UNICEF are all founding members of the Measles Initiative. Other key partners in the initiative include the International Federation of Red Cross and Red Crescent Societies, the Gates Foundation, the Canadian International Development Agency, and countries affected by measles.



Local children and vaccination team,
Measles Vaccination Campaign,
Chuuk, Federated States of Micronesia



Measles and Rubella Vaccination Campaign in Federated States of Micronesia, Chuuk

Large measles and rubella outbreaks with more than 1,000 cases occurred in the Marshall Islands and Western Samoa respectively in 2003. In response, the Federated States of Micronesia (FSM), with support from the National Immunization Program, decided to conduct a mass measles and rubella (MR) vaccination campaign in Chuuk, one of the four FSM States. Chuuk was chosen because of its low MMR vaccine coverage level among two-year-old children—76% in 2003. In addition, this state has had no surveillance system in place to monitor febrile rash illness and had no data on measles or rubella incidence.

The campaign was conducted from April 12–May 30. More than 19,000 children ages 1–14 years and over 5,000 women of childbearing age were immunized against measles and rubella. Also, children 1–12 years old received vitamin A supplements, and children 2–12 received de-worming medication. Twelve NIP staff, including public health advisors, medical epidemiologists and information technology specialists, assisted the FSM government during the planning and the actual campaign, working in teams traveling by boat from island to island to cover the seventeen lagoon islands.

Following the campaign, CDC continues to work with the FSM government to enhance routine immunization efforts, enforce school immunization laws, support administration of measles-rubella vaccine to all women after childbirth, and assess needs for follow-up campaigns in collaboration with partner organizations such as WHO and UNICEF.

Integrating Health Interventions to Save Additional Lives

In mid-December 2004, the Measles Initiative implemented a nationwide integrated health campaign in the West African nation of Togo, delivering multiple life-saving interventions at once. During the campaign, health workers vaccinated children against measles and polio and provided young children with de-worming tablets. Health teams also distributed insecticide-treated bed nets (ITNs) to all households with children under five years of age to help prevent malaria, a mosquito-borne disease that kills nearly one million children each year in Africa. While ITN distribution has been previously combined with measles vaccination at the district level, the Togo campaign is the first time it has been done on a national scale. The integrated strategy has the potential to save thousands of additional lives and saves governments money by combining interventions to the same target group—children.